

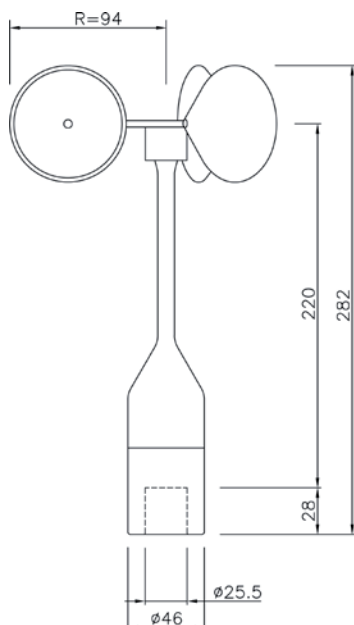
- Classification: CLASSCUP (Report: Risø-R-1348 (EN))
- Reference report
- Measnet-calibrated anemometer
- Low threshold speed
- Low distance constant
- Negligible overspeeding
- Angular response independent of wind speed
- Fully tested temperature performance
- Symmetrical geometry



Description

The P2546A-OPR Cup Anemometer is a sturdy wind sensor solely constructed by durable materials such as anodized aluminium and stainless steel. The wind speed is sensed by a three-cup one-piece rotor (OPR) assembly. Permanent magnets mounted on the shaft causes a switch to close and open two times per revolution. The switch has no bounce and it is equipped with a special built-in mechanism, which reduces the variation in operating time over the frequency range. This feature provides the possibility of obtaining the instantaneous wind speed by measuring the time interval of each revolution.

Dimensional drawing



Connector diameter: 20 mm

Specification

The specifications are based on 80 wind tunnel calibrations performed according to the Measnet Cup Anemometer Calibration Procedure. The specified offset and gain figures represent the mean values of these calibrations. Variation among units designates the maximum deviation of any unit from the straight line representing these mean values.

All units are run-in for 225 hours at 9 m/s, in order to reduce the initial bearing friction to a level close to the steady state value.

After run-in, bearing friction is tested at -15 °C and at room temperature. The allowed limits for this test assures that the temperature influence on the calibration is within the specified limit.

Mounting

The inner diameter of the anemometer base is 25.5 mm. The diameter of the connector itself is 20 mm. Thus the diameter of the tube should be at least 21 mm. Please consider the dimensions when mounting the anemometer on the tube. We recommend using tubes with material thickness of 1.5 mm. See dimensional drawing.

Note: The WindSensor P2546A-OPR anemometer (reed switch) contains 40 mg of mercury and is not available for sale in some US states. The following states ban selling mercury switches: California (CA), Illinois (IL), Maine (ME), Massachusetts (MA), Minnesota (ME), New York (NY), and Vermont (VT). Refer to <http://www.epa.gov/hg/regs.htm> for further details.

Characteristic	Description / Value
Measurement range	0 ... 70 m/s
Slope	0.6201 m
Offset	0.027 m/s
Starting threshold	< 0.4 m/s
Distance constant	$\lambda_0 = 1.81 \pm 0.04$ m
Standard deviation of offset	0.014 m/s
Standard deviation of gain	0.027 m
Variation among units	$\pm 1\%$
Non-Linearity	< 0.04 m/s
Temperature influence	< 0.05 m/s (-15 ... +60 °C)
Switching characteristic	
Signal Type	potential free contact closure
Duty cycle	40 ... 60 %
Max. switching voltage	30 V
Max. recommended switching current	10 mA
Series resistance	330 Ω , 1 W
Operating temperature range	-35 ... +60 °C
Reference report	RISØ-R-1364 (ed. 2) [EN], Mar 2004; IEC 88/185/CDV
Manufacturer	WindSensor
Accessories	Module M83570 or M83200 (pull-up resistor required)

Sensor connection to Ammonit Meteo-40 data logger

Sensor	Ammonit Wire Color	Meteo-40 Counter	Supply Sensor
Signal, high	white	Counter CNT, 6k8 (Switch: 5 V via 6k8 to CNT, Pull-up resistor)	
Signal, low	black		Main Ground

Connect the shield logger-sided to Ground (GND)

Cable type: LiYCY 2 (3) x 0.25 mm²

Anemometer WindSensor Wind Speed

